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Clinical Analysis of EEG for Cognitive Activation Using MATLAB Applications

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Abstract



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The pomodoro technique is a helpful study method for managing time. The technique, developed by Francesco Cirillo in the late 1980s, is an attempt to cram as much learnin... **View more**

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Abstract:

The pomodoro technique is a helpful study method for managing time. The technique, developed by Francesco Cirillo in the late 1980s, is an attempt to cram as much learning as possible into as little time as possible. The system is based on a study session of 25 minutes followed by a 5-minute break, during which time no electronic devices (such as phones or TVs) may be used. After four hours of work, you may use your computers for an unstructured 15–20-minute break. The use of electroencephalogram (EEG) sensors or smartphone sensors to identify lapses in attention is therefore the subject of current research. By analysing these signals, I may get a better understanding of attention and the point at which a person becomes distracted and thereby use this research to alter our preconceptions about this characteristic of human beings. Teachers might use this instead of reading their students' faces to know when to give them a break if the statistics reveal that the average student needs one after a certain period of time. The first step is to locate an archive of electroencephalogram (EEG) recordings of people engaged in focused attention tasks. After this, the data is processed in MATLAB by extracting features from it. Bandpass filters allow me to transform my time-domain data into the frequency domain, from which I can extract the frequencies I'm interested in. This study seeks to improve our understanding of people's attention spans in order to tailor the Pomodoro technique to each individual. Its goal is to let people know when they're being distracted so they can decide whether to keep working or take a break. Since people's attention levels and the amplitude before and during the state of concentration vary, the results indicate that

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the Pomodoro method has to be modified for each person's attention span in order to be considered the most effective approach to study.

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 **Contents**

I. Introduction

A student's level of success in school may be tied to how They are able to concentrate on a single task throughout the course of a normal school day. Strengthening the foundational understanding of attention span, how it could be lost, and its analysis in many fields might help persuade educational institutions that courses cannot run longer than the average attention span. Otherwise, the information being imparted will be useless. In this post, we'll look at how MATLAB may be used to analyse EEG data and derive a subject's concentration level [1]. The EEG data was gathered with the use of portable brainwave sensors and a specially designed EEG detection system. As a result of their frequency distribution, EEG signals are separated into five different wavebands [2].

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